

AMENDMENTS TO THE CLAIMS

The following is a complete listing of all claims in the subject application with the status of each claim being indicated in a parenthetical expression. The text of each claim under examination is presented and all claims being currently amended include markings indicating the changes that have been made relative to the immediate prior version. The text of pending claims not being amended herewith is presented in clean version.

1. (Currently Amended) A method of maintaining a seawall ~~disposed~~ installed in use between a body of water and retained earth, comprising the steps of

forming a passage through the installed seawall to extend downwardly at an acute angle from a water facing side of the seawall to an earth facing side of the seawall;

inserting a longitudinally extending shaft of an anchoring member through the passage from the water facing side of the seawall and into the retained earth on the earth facing side of the seawall, with the shaft carrying an anchor of the anchoring member;

advancing the anchoring member into the retained earth while an end of the shaft extends from the passage along the water facing side of the seawall, said advancing including contacting the retained earth with the anchoring member such that the anchoring member penetrates the retained earth and the portion of the anchoring member extending into the retained earth from the earth facing side of the seawall is embedded in the earth;

anchoring ~~an~~ the anchor of the anchoring member in the retained earth at a

distance spaced from the earth facing side of the seawall with ~~a longitudinally extending~~
~~the end of the shaft of the anchoring member which carries the anchor extending~~
~~through from the passage along the water facing side of the seawall;~~ and

securing a retaining member on ~~an~~ the end of the shaft ~~extending from the~~
~~passage along the water facing side of the seawall to apply compressive force against~~
~~the water facing side of,~~ said securing including tensioning the anchoring member
between the anchor and the retaining member and compressing the seawall and the
retained earth between the anchor and the retaining member to resist displacement of
the seawall due to pressure of the retained earth against the earth facing side thereof.

2. (Currently Amended) The method of ~~retaining~~ maintaining a seawall as
recited in claim 1 wherein said ~~step of forming~~ includes drilling through the thickness of
the seawall using a drilling machine ~~deployed on the body of water.~~

3. (Currently Amended) The method of maintaining a seawall as recited in
claim 1 wherein said ~~step of advancing~~ includes moving the shaft longitudinally into the
retained earth.

4. (Currently Amended) The method of maintaining a seawall as recited in
claim 3 wherein said ~~step of advancing~~ includes rotating the shaft into the retained
earth.

5. (Currently Amended) The method of maintaining a seawall as recited in

claim 1 wherein said ~~step of~~ anchoring includes embedding a helical formation of the anchor in the retained earth to resist withdrawal of the anchoring member from the retained earth.

6. (Currently Amended) The method of maintaining a seawall as recited in claim 1 wherein said ~~step of~~ advancing includes advancing the anchoring member into the retained earth with the anchor in a collapsed position and said ~~step of~~ anchoring includes moving the anchor to an expanded position resisting withdrawal of the anchoring member from the retained earth.

7. (Currently Amended) The method of maintaining a seawall as recited in claim 1 wherein said ~~step of~~ securing includes threadedly engaging a securing the retaining member on the end of the shaft with the retaining member disposed between the water facing side of the seawall and a the securing member threadedly engaged, said threadedly engaging including engaging the securing member on the shaft at a longitudinal position along the shaft to apply compressive force against the retaining member which is transmitted to the seawall.

8. (Currently Amended) The method of maintaining a seawall as recited in claim 4 ~~7~~ wherein said ~~step of securing~~ threadedly engaging includes tensioning the anchoring member between the anchor and the retaining member.

9. (Currently Amended) The method of maintaining a seawall as recited in

claim 1 and further including ~~the step of~~ introducing a filler into the passage around the shaft.

10. (Currently Amended) The method of maintaining a seawall as recited in claim 1 wherein said ~~step of~~ securing includes inserting an insert between the retaining member and the water facing side of the seawall and securing the retaining member on the end of the shaft with the insert interposed between the retaining member and the water facing side of the seawall to apply compressive force from the retaining member against the water facing side of the seawall.

11. (Currently Amended) The method of maintaining a seawall as recited in claim 1 and further comprising, subsequent to said securing ~~step, the step of~~ periodically inspecting the seawall and periodically adjusting the retaining member along the shaft to adjust the ~~compressive force applied by the retaining member against the seawall~~ tension and compression.

12. (Currently Amended) A method of maintaining a seawall ~~disposed~~ installed in use between a body of water and retained earth, comprising the steps of installing a first anchoring member to extend through the installed seawall and into the retained earth, said installing including installing the first anchoring member from a water facing side to an earth facing side of the seawall at a first location and tensioning the first anchoring member to compress the seawall against the retained earth;

installing a second anchoring member to extend through the seawall and into the retained earth, said installing a second anchoring member including installing the second anchoring member from the water facing side ~~to the earth facing side of the seawall~~ at a second location spaced from the first location and tensioning the second anchoring member to compress the seawall against the retained earth; and

subsequent to installing the first and second anchoring members, rigidly interconnecting the ~~ends of the~~ first and second anchoring members to maintain ~~the a~~ separation distance between the first and second anchoring members.

13. (Currently Amended) The method of maintaining a seawall as recited in claim 12 wherein said ~~step of~~ installing a first anchoring member comprises anchoring an anchor of the first anchoring member in the retained earth at a distance spaced from the an earth facing side of the seawall with an end of the first anchoring member extending from a the water facing side of the seawall and securing a first retaining member on the end of the first anchoring member, said ~~step of~~ installing a second anchoring member comprises anchoring an anchor of the second anchoring member in the retained earth at a distance spaced from the earth facing side of the seawall with an end of the second anchoring member extending from the water facing side of the seawall and securing a second retaining member on the end of the second anchoring member, and said ~~step of~~ rigidly interconnecting comprises rigidly interconnecting the first and second retaining members.

14. (Currently Amended)The method of maintaining a seawall as recited in claim

13 wherein said ~~step of~~ securing a first retaining member includes tensioning the first anchoring member between the first retaining member and the anchor of the first anchoring member and compressing the seawall and the retained earth between the first retaining member and the anchor of the first anchoring member and said ~~step of~~ securing a second retaining member includes tensioning the second anchoring member between the second retaining member and the anchor of the second anchoring member and compressing the seawall and the retained earth between the second retaining member and the anchor of the second anchoring member.

15. (Currently Amended) The method of maintaining a seawall as recited in claim 13 wherein said ~~step of~~ rigidly interconnecting includes connecting a first end of a connecting member to the first retaining member and connecting a second end of the connecting member to the second retaining member with the connecting member having a fixed length between the first and second retaining members such that the size of the separation distance maintained between the first and second anchoring members is non-variable once the connecting member has been connected to the first and second retaining members.

16. (Currently Amended) The method of maintaining a seawall as recited in claim 13 wherein said ~~step of~~ rigidly interconnecting includes connecting a first end of a connecting member to the first retaining member and connecting a second end of the connecting member to the second retaining member with the connecting member having ~~an~~ a selectively adjustable length between the first and second retaining

members such that the size of the separation distance maintained between the first and second anchoring members is selectively variable once the connecting member has been connected to the first and second retaining members.

17. (Currently Amended) ~~A~~ The method of maintaining a seawall as recited in claim 12 wherein said step of ~~disposed between a body of water and retained earth,~~
comprising the steps of

~~installing a first anchoring member includes installing the first anchoring member~~
to extend through the seawall from a water facing side to an earth facing side of
the seawall at a first location disposed on one side of an opening in the seawall; ~~said~~
~~step of;~~

~~installing a second anchoring member includes installing the second anchoring~~
~~member~~ to extend through the seawall from the water facing side to the earth facing
side at a second location spaced from the first location and disposed on an opposite
side of the opening; and

rigidly interconnecting the first and second anchoring members to maintain a
separation distance between the first and second anchoring members, and said step of
rigidly interconnecting includes including drawing the first and second anchoring
members toward one another to reduce the size of the opening and maintaining the
separation distance between the first and second anchoring members when the
opening is reduced in size.

18. (Currently Amended) The method of maintaining a seawall as recited in

claim 12 and further including ~~the steps of~~ installing a third anchoring member to extend through the seawall and into the retained earth, said installing a third anchoring member including installing the third anchoring member from the water facing side ~~to the earth facing side~~ of the seawall at a third location spaced from the first and second locations and tensioning the third anchoring member to compress the seawall against the retained earth and, subsequent to installing the third anchoring member, rigidly interconnecting the third anchoring member to at least one of the first and second anchoring members to maintain ~~the~~ a separation distance between the third anchoring member and the at least one of the first and second anchoring members.

19. (Currently Amended) The method of maintaining a seawall as recited in claim 17 and further including, subsequent to said ~~step of~~ rigidly interconnecting, ~~the steps of~~ periodically inspecting the seawall, periodically further drawing the first and second anchoring members toward one another to further reduce the size of the opening, and maintaining the separation distance between the first and second anchoring members each time the opening is further reduced in size.

20. (Currently Amended) The method of maintaining a seawall as recited in claim 17 wherein said ~~step of~~ drawing includes closing the opening.

21. (Currently Amended) Apparatus for maintaining a seawall ~~disposed~~ installed in use between a body of water and retained earth, comprising
a first anchoring device comprising a first anchoring member and a first retaining

member, said first anchoring member comprising a longitudinally extending shaft; and an anchor carried by said shaft for being anchored in the retained earth at a distance spaced from an earth facing side of the installed seawall with an end of said shaft extending from a water facing side of the seawall at a first location, said first retaining member being securable on said end of said shaft at a selected location along the length of said shaft to establish tension in said first anchoring member between said anchor and said first retaining member and compression in the seawall and retained earth between said anchor and said first retaining member in an anchored position for said first anchoring member;

a second anchoring device comprising a second anchoring member and a second retaining member, said second anchoring member comprising a longitudinally extending shaft; and an anchor carried by said shaft of said second anchoring member for being anchored in the retained earth at a distance spaced from the earth facing side of the seawall with an end of said shaft of said second anchoring member extending from the water facing side of the seawall at a second location, spaced from the first location, said second retaining member being securable on said end of said shaft of said second anchoring member at a selected location along the length of said shaft of said second anchoring member to establish tension in said second anchoring member between said anchor of said second anchoring member and said second retaining member and compression in the seawall and retained earth between said anchor of said second anchoring member and said second retaining member in an anchored position for said second anchoring member, said tension and compression established in said anchored position for said second anchoring member being independent of said

tension and compression established in said anchored position for said first anchoring member; and

a connecting member securable to said first and second retaining members while said first and second anchoring members are in said anchored position to maintain the a separation distance between said first and second anchoring members.

22. (Currently Amended) The apparatus for maintaining a seawall as recited in claim 21 wherein said first anchoring device further comprises a first securing member threadedly securable on said end of said shaft of said first anchoring member with said first retaining member disposed on said shaft of said first anchoring member between said first securing member and the water facing side of the seawall, and said second anchoring device further comprises a second securing member threadedly securable on said end of said shaft of said second anchoring member with said second retaining member disposed on said shaft of said second anchoring member between said second securing member and the water facing side of the seawall, said first and second securing members being effective to respectively tension said first and second anchoring members and to compress the seawall and retained earth between said anchors and said first and second retaining members in said anchored positions for said first and second anchoring members.

23. (Currently Amended) The apparatus for maintaining a seawall as recited in claim 21 wherein said connecting member includes a first end securable to said first retaining member, a second end securable to said second retaining member, and a

fixed length between said first and second retaining members to maintain a separation distance of non-variable size.

24. (Currently Amended) The apparatus for maintaining a seawall as recited in claim 21 wherein said connecting member includes a first end securable to said first retaining member, a second end securable to said second retaining member, and an adjustable length between said first and second retaining members for selectively adjusting the size of the separation distance to be maintained between said first and second anchoring members.

25. (Original) The apparatus for maintaining a seawall as recited in claim 24 wherein said connecting member comprises a turnbuckle.

26. (Currently Amended) The apparatus for maintaining a seawall as recited in claim 21 wherein at least one of said first and second anchoring devices further comprises a sleeve for receiving said shaft of said anchoring member of said at least one of said first and second anchoring ~~members~~ devices therethrough and for extension through the seawall with an interference fit to remain in place in the seawall in said anchored position for said anchoring member of said at least one of said first and second anchoring devices.

27. (Original) The apparatus for maintaining a seawall as recited in claim 21 wherein at least one of said first and second anchoring devices further comprises an

insert for being interposed between said retaining member of said at least one of said first and second anchoring devices and the water facing side of the seawall.

28. (Original) The apparatus for maintaining a seawall as recited in claim 21 wherein said anchors of said first and second anchoring members comprise helical formations, respectively.

29. (Currently Amended) The apparatus for maintaining a seawall as recited in claim 21 wherein said anchors of said first and second anchoring members are each movable between a collapsed position and an expanded position in which said anchors are anchored in the retained earth in said anchored positions for said first and second anchoring members.

30. (New) The method of maintaining a seawall as recited in claim 2 wherein said forming includes drilling while the drilling machine is deployed on the body of water.

31. (New) The method of maintaining a seawall as recited in claim 1 wherein said forming is performed on a seawall that has become displaced from a previous desired position for the seawall and said securing includes moving the seawall back toward the previous desired position.

32. (New) The method of maintaining a seawall as recited in claim 1 wherein

said forming, said advancing, said anchoring and said securing are performed for a sufficient number of anchoring members on a seawall that has become displaced from a previous desired position for the seawall, such that the seawall is moved back to the previous desired position.